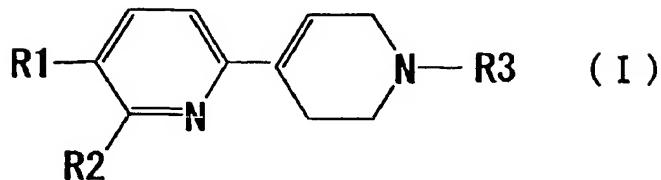


Claims

1. A compound represented by the following formula (I) and a salt thereof;



wherein

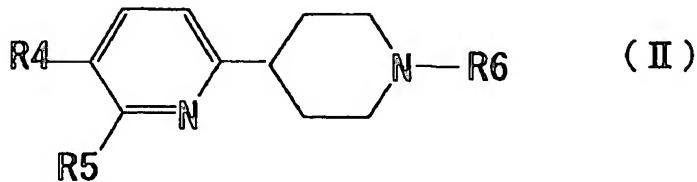
R1 represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group, an alkoxy group, an aryloxy group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group, a sulfamoyl group, a thiol group, an alkylthio group, an arylthio group, a thiocarbonyl group, a ureido group, an amino group, a carbonylamino group, a sulfonylamino group, a cyano group, a heterocycle residue, a fluorine atom, a bromine atom or an iodine atom,

R2 represents a hydrogen atom or an alkyl group,

R1 and R2 may combine and form a ring structure, and

R3 represents a hydrogen atom, an alkyl group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group or a sulfamoyl group.

2. A compound represented by the following formula (II) and a salt thereof;



wherein

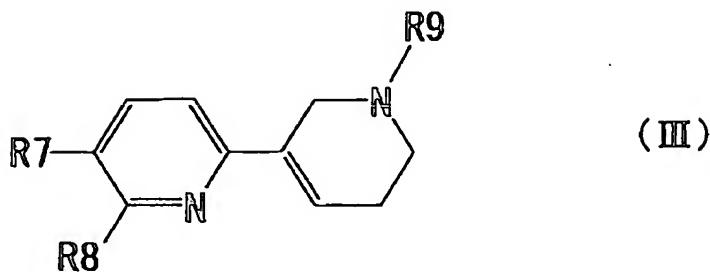
R4 represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group, an alkoxy group, an aryloxy group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group, a sulfamoyl group, a thiol group, an alkylthio group, an arylthio group, a thiocarbonyl group, a ureido group, an amino group, a carbonylamino group, a sulfonylamino group, a cyano group, a heterocycle residue, a fluorine atom, a bromine atom or an iodine atom,

R5 represents a hydrogen atom or an alkyl group,

R4 and R5 may combine and form a ring structure, and

R6 represents a hydrogen atom, an alkyl group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group or a sulfamoyl group, provided that R6 does not represent a methyl group when R4 and R5 combine and form a benzene ring.

3. A compound represented by the following formula (III) and a salt thereof;



wherein

R7 represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group, an alkoxy group, an aryloxy group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group, a sulfamoyl group, a thiol group, an alkylthio group, an arylthio group, a thiocarbonyl group, a ureido group, an amino group, a carbonylamino group, a sulfonylamino group, a nitro group, a cyano group, a halogen atom or a heterocycle residue,

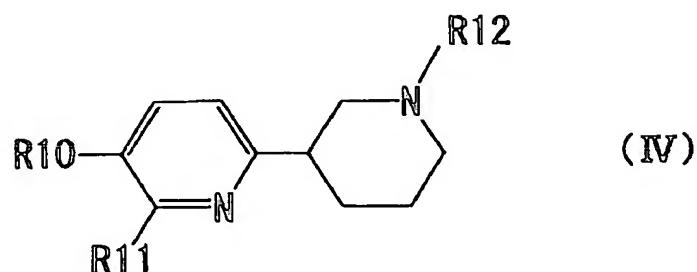
R8 represents a hydrogen atom or an alkyl group,

R7 and R8 may combine and form a ring structure, and

R9 represents a hydrogen atom, an alkyl group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group

or a sulfamoyl group, provided that R9 does not represent a sulfonyl group when R7 represents a chlorine atom and R8 represents a hydrogen atom.

4. A compound represented by the following formula (IV) and a salt thereof;



wherein

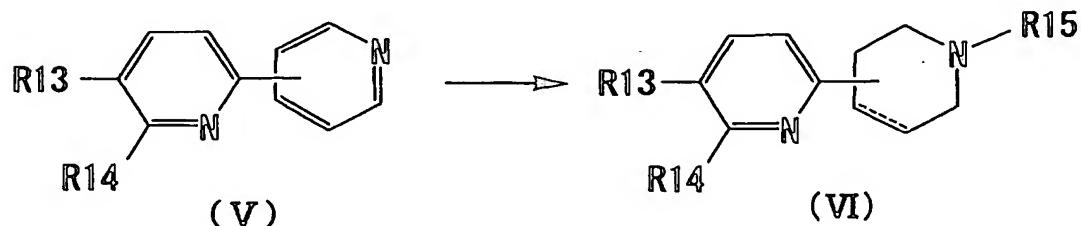
R10 represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group, an alkoxy group, an aryloxy group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group, a sulfamoyl group, a thiol group, an alkylthio group, an arylthio group, a thiocarbonyl group, a ureido group, an amino group, a carbonylamino group, a sulfonylamino group, a nitro group, a cyano group, a heterocycle or residue a halogen atom,

R11 represents a hydrogen atom or an alkyl group,

R10 and R11 may combine and form a ring structure, and

R12 represents a hydrogen atom, an alkyl group, a formyl group, a carboxyl group, a carbonyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group or a sulfamoyl group.

5. A method of manufacturing a compound represented by the following formula (IV) through reaction between a bipyridine derivative represented by the following formula (V) and benzyl halide or benzyloxycarbonyl halide and subsequent reduction of the reaction product with a palladium catalyst, a platinum catalyst, a ruthenium catalyst or a rhodium catalyst;



===== represents a single or double bond.

wherein

R13 and R14 each independently represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, an aryl group, an alkoxy group, an aryloxy group, a formyl group, a carbonyl group, a carboxyl group, an oxycarbonyl group, a sulfonyl group, a carbamoyl group, a sulfamoyl group, a thiol group, an alkylthio group, an arylthio

group, a thiocarbonyl group, a ureido group, an amino group, a carbonylamino group, a sulfonylamino group, a nitro group, a cyano group, a halogen atom or a heterocycle residue,

R13 and R14 may combine and form a ring structure, and

R15 represents a hydrogen atom, a benzyl group or a benzyloxycarbonyl group.